2155

Atty. Dkt. No. 017344-0316

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Norihito FUJITA

Title: QoS-BASED SHORTEST PATH ROUTING FOR A HIERARCHICAL COMMUNICATION

Appl. No.: 09/836,177

Filing Date: 04/18/2001

Examiner: David R. Lazaro

Art Unit: 2155

CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**, on the date below.

David A. Blumenthal
(Printed Name)

(Signature)

January 3, 2005
(Date of Deposit)

AMENDMENT TRANSMITTAL

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is an amendment in the above-identified application.

[ ] Small Entity status under 37 C.F.R. § 1.9 and § 1.27 has been established by a previous assertion of Small Entity status.

[ ] Assertion of Small Entity status is enclosed.

[X] The fee required for additional claims is calculated below:

	Claims As Amended		Previously Paid For		Extra Claims Present		Rate		Additional Claims Fee
Total Claims:	12	-	20	=	0	x	$50.00	=	$0.00
Independent Claims:	6	-	6	=	0	x	$200.00	=	$0.00
First presentation of any Multiple Dependent Claims:						+	$360.00	=	$0.00
CLAIMS FEE TOTAL								=	$0.00

[ ] Applicant hereby petitions for an extension of time under 37 C.F.R. §1.136(a) for the total number of months checked below:

[ ] Extension for response filed within the first month:	$120.00	$0.00
[ ] Extension for response filed within the second month:	$450.00	$0.00
[ ] Extension for response filed within the third month:	$1,020.00	$0.00
[ ] Extension for response filed within the fourth month:	$1,590.00	$0.00
[ ] Extension for response filed within the fifth month:	$2,160.00	$0.00
EXTENSION FEE TOTAL:		$0.00
[ ] Statutory Disclaimer Fee under 37 C.F.R. 1.20(d):	$130.00	$0.00
CLAIMS, EXTENSION AND DISCLAIMER FEE TOTAL:		$0.00
[ ] Small Entity Fees Apply (subtract ½ of above):		$0.00
TOTAL FEE:		$0.00

[ ] Please charge Deposit Account No. 19-0741 in the amount of $0.00. A duplicate copy of this transmittal is enclosed.

[ ] A check in the amount of $0.00 is enclosed.

[**X**] The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Please direct all correspondence to the undersigned attorney or agent at the address indicated below.

Respectfully submitted,

Date 1-3-05

By

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Christine Flores
(Printed Name)

(Signature)

January 3, 2005
(Date of Deposit)

AMENDMENT AND REPLY UNDER 37 CFR 1.111

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This communication is responsive to the Non-Final Office Action dated October 5, 2004, concerning the above-referenced patent application.

Please amend the application as follows:

In the Written Description:

On page 9, paragraph beginning at line 23, amend as follows:

Each of the area border routers 44 and 45 shrinks the routing updates of their local area 4 into a summary and sends it to the backbone 5 and shrinks the routing updates of backbone area 5 into a summary for distribution within their local area 4. Likewise, each of the area border routers 61 and 62 shrinks the routing updates of their local area 6 into a summary for distribution to the backbone area 5 and shrinks the routing updates of backbone 5 into a summary for distribution within their local area 6. Note that the summary of backbone 5 distributed within the area 4 also contains the summary of area 6. Hence all routers of area 4 have the knowledge of which destinations are reachable within area 6 as well as within the backbone area 5. Likewise, all routers of area 6 have the knowledge of which destinations are reachable within areas 4 as well as within the backbone area 5~~area 6~~.

On page 10, paragraph beginning at line 11, amend as follows:

As shown in Fig. 2, each of the routers of the present invention includes an interface 20 connected via communication links to neighboring routers. The interface 20 performs routing with the neighbors according to the routing protocol of the OSPF domain. Interface 20 is associated with a topology table 21 and a plurality of resource tables to maintain network database by exchanging LSAs with neighboring routers. As a representative router, the router 44 may includes a resource table 22 for holding the bandwidth database of its local area 4, a resource table 23 for holding the bandwidth database of the backbone area 5 and a resource table 24 for holding a summarized database of the non-adjacent area 6. More specifically, the summarized resource table 24 contains hop count ~~hot count~~ values and remaining bandwidths of routes from the area border routers 61 and 62 to the network 60.

On page 9, paragraph beginning at line 23, amend as follows:

If the user requests a 15-Mbps route to the network 60~~(step 70)~~(step 70)~~. Processor~~ the processor 25 determines that the destination is outside of the local area (step 71). Processor 25 then examines the Area-ID field of the entry and knows that the backbone area 5

is the traversable area and the network 60 can be reached via the backbone area 5. In the topology table, the entry of network 60 is referenced and the Area ID = 5 of the backbone area 5 is read (step 80). Processor 25 knows that the network 60 can be reached via links of the backbone area 5 to the routers 61 and 62. Corresponding ~~corresponding~~ to Area ID = 5, the resource table 23 is referenced (step 81) and links of remaining bandwidth of at least 15-Mbps are selected from this resource table (step 82). Processor 25 reads the router identifiers ID = 61 and ID = 62 of the ABR list of the referenced entry (step 83). Processor 25 performs the Dijkstra algorithm calculation on the selected links to find a shortest path tree that extends from the source router 44 to the area border routers 61 and 62 (steps 84 to 87). For example, two routes 101 and 102 from the router 44 to area border routers 61 and 62 are selected. Route 101 includes a first link from router 44 to router 51, an intermediate link from router 51 to router 53, an intermediate link from router 53 to router 52 and a final link from router 52 to router 61. Second route 102 includes a first link from router 44 to router 51, an intermediate link from router 51 to router 53 and a final link from router 53 to router 62. Since there is only one Area ID in the entry of the network 60, the processor then proceeds from step 87 to step 89. Since two routes are determined, the processor examines the summarized resource table 24 and compares the two selected routes in terms of bandwidth available to the network 60 in the area 6 or hop count values of routes from the source router 44 to the area border routers 61 and 62.